Lowering the Blood Lead Interview Criteria Level; An Evaluation of Effectiveness Using Data from the New York State Department of Health's (NYSDOH) Heavy Metals Registry (HMR)

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New York State's (NYS) Heavy Metals Registry (HMR)

- All blood lead test results on NYS residents and employees are received from laboratories.

- Blood lead levels (blls) of 10 µg/dL and above are case-matched and incorporated into the HMR.

Heavy Metals Registry (HMR)

- In March 2009, the HMR lowered the lead interview benchmark

  - men (18 years and older) lowered from 20 µg/dL down to 15 µg/dL
  - women of childbearing age (age 16-45) lowered from 15 µg/dL down to 10 µg/dL
  - 16-17 year olds (of both genders) are interviewed at 10 µg/dL

Interview/HMR Staff

- 2 telephone interviewers; 1 is a Spanish speaker
- 1 staff person to incorporate electronic laboratory data and assign interviews on daily basis
- 1 staff person to follow-up with laboratories and testing physicians to obtain missing lab report data

Telephone Interview

- designed to capture info on exposures, risk factors and protective controls used in the workplace & collects detailed information on non-occupational exposures
- provides education on methods to reduce future exposures
- telephone interview takes ~10 minutes to complete but can be time intensive making first contact

Interview Protocol

- Lab result received and matched to existing HMR database by staff.
  - All new cases meeting criteria are assigned for interview.
  - Staff will follow up with lab and/or testing physician to obtain missing demographic info (phone number) if not included on lab report.

- Staff routinely follow-up with labs and/or testing physician at blls 25 ug/dL or higher to get information on industry and occupation, if unable to obtain via interview.

Interview protocol

- Prioritized based on blood lead levels (bll); blls 40+ µg/dL are of the highest priority.
- At least 5 attempts are made at different times of the day and week during the 1st week.
- If no contact, a certified letter, along with a lead brochure, is sent at end of second week.
- After 3 weeks without contact/response, a 2nd certified letter is sent.
- Interviews can take 3-5 weeks to complete from start to finish.

Re-Interview Criteria

- Re-interview queue:

  - ✓ Interview any repeat case who hasn't been interviewed in 3 years
    - case by case basis--emphasis on those cases with unknown employer

  - ✓ If bll increases dramatically in short period of time (~6 months, bll increases 15 µg/dL)

HMR Population
3/1/09-8/31/09

1,458 people with 2,260 tests

		N	%
Blood lead levels (mcg/dL)			
	10-14	780	53.5
	15-19	354	24.3
	20-24	173	11.9
	25 or higher	151	10.3
Gender			
	male	1250	85.7
	female	208	14.3
Age			
	16-30 years	323	22.2
	30-49 years	754	51.7
	50 years and older	381	26.1

Number of People, by gender and blood lead level

Females (N=208)	N	%
10-14 µg/dL	134	64.4
15-19 µg/dL	42	20.2
20-24 µg/dL	12	5.8
25+ µg/dL	20	9.6

Males (N=1,250)	N	%
10-14 µg/dL	646	51.7
15-19 µg/dL	312	25.0
20-24 µg/dL	161	12.9
25+ µg/dL	131	10.5

Number of People, by gender and blood lead level

Females	N	# Interviewed*
10-14 ug/dL	134	114
15-19 ug/dL	42	32
20-24 ug/dL	12	6
25+ ug/dL	20	14

Males	N	# Interviewed*
10-14 ug/dL**	646	14
15-19 ug/dL	312	169
20-24 ug/dL	161	106
25+ ug/dL	131	64

* includes only those meeting interview crieria
** males between 10-14 ug/dL only interviewed if 16 or 17 years old

Interview Status by blood lead category

< 25 µg/dL (N=1,307)

Interview Status	%
Complete	35.4
Dead-end	54.5
Refused	9.5
Not Assigned/Inter.	0.6

25+ µg/dL (N=151)

Interview Status	%
Complete	48.3
Dead-end	41.7
Refused	8.6
Not Assigned/Inter.	0.7

Interview Status by prior interviewed cases ('old') vs. newly interviewed cases ('new')

*for blls < 25 µg/dL only

'Old' (N=447)

('also interviewed prior to 3/1/09)

Complete (%) -- 35.6

Dead-end (%) -- 57.3

Refused (%) -- 6.7

Not Assigned/Inter. (%) --0.4

'New' (N=228)

('never interviewed prior to 3/1/09)

Complete (%) -- 28.7

Dead-end (%) -- 46.5

Refused (%) -- 24.4

Not Assigned/Inter. (%) -- 0.4

If Interview Status is complete, what is occupational status of case?

*for blls < 25 µg/dL only

'Old' (N=159)

(also interviewed prior to 3/1/09)

Occupational (%) -- 85.5

Non-occupational (%) -- 9.7

Both (%) -- 4.8

Unknown (%) -- 0

'New' (N=65)

(never interviewed prior to 3/1/09)

Occupational (%) -- 60.3

Non-occupational (%) -- 25.0

Both (%) -- 9.2

Unknown (%) -- 5.4

Occupational Cases With Completed Interviews

(*for blls < 25 µg/dL only)

	'Old' (N=136)	'New' (N=39)
GENDER		
Male	96%	96%
Female	4%	4%
BLLs		
10-14 ug/dL	28%	22%
15-19 ug/dL	49%	56%
20-24 ug/dL	23%	23%
Top Exposures	bridge work "job-related" metal recycling shooting	bridge work "job-related" cable splicing renovation

Non-Occupational Cases With Completed Interviews (*for blls < 25 µg/dL only)

	'Old' (N=15)	'New' (N=16)
GENDER		
Male	33%	24%
Female	67%	76%
BLLs		
10-14 ug/dL	47%	15%
15-19 ug/dL	53%	61%
20-24 ug/dL	0%	24%
Top Exposures	environmental cookware folk medicine renovation	shooting folk medicine renovation

Both Occupational & Non-Occupational Cases With Completed Interviews (*for blls < 25 µg/dL only)

	'Old' (N=8)	'New' (N=6)
GENDER		
Male	100%	100%
Female	0%	0%
BLLs		
10-14 ug/dL	37%	16%
15-19 ug/dL	0%	50%
20-24 ug/dL	63%	33%
Top Exposures	shooting job exp code	shooting renovation Job exp code

If Interview Status is not complete (refusal or dead end), what is occupational status of case?

'Old' (N=288)

(interviewed prior to 3/1/09)

Occupational (%) -- 50.1

Non-occupational (%) -- 9.1

Both (%) -- 0.3

Unknown (%) -- 40.5

'New' (N=163)

(never interviewed before 3/1/09)

Occupational (%) -- 35.5

Non-occupational (%) -- 2.7

Both (%) -- 0

Unknown (%) -- 61.7

Occupational Cases Without Completed Interviews (*for blls < 25 µg/dL only)

	'Old' (N=144)	'New' (N=58)
GENDER		
Male	98%	98%
Female	2%	2%
BLLs		
10-14 ug/dL	38%	62%
15-19 ug/dL	35%	25%
20-24 ug/dL	27%	13%
Top Exposures	bridge work "job related" smelter work renovation metal recycling	bridge work "job related"

Non-Occupational Cases Without Completed Interviews (*for blls < 25 µg/dL only)

	'Old' (N=4)	'New' (N=26)
GENDER		
Male	75%	75%
Female	25%	25%
BLLs		
10-14 ug/dL	25%	33%
15-19 ug/dL	50%	25%
20-24 ug/dL	25%	42%
Top Exposures	herbal medicine shooting renovation	herbal medicine shooting environmental

Unknown Cases Without Completed Interviews

(*for blls < 25 µg/dL only)

	'Old' (N=117)	'New' (N=101)
GENDER		
Male	99%	73%
Female	1%	27%
BLLs		
10-14 ug/dL	73%	86%
15-19 ug/dL	19%	9%
20-24 ug/dL	8%	4%

Conclusions

- Significantly increased number of people to be assigned for interview --->

- added an additional ~40 females (blls 10-24 µg/dL)

  ~250% increase based on same period of time during 2009

- added an additional ~100 males (blls 15-24 µg/dL)

  ~215% increase based on same period of time during 2009

Conclusions

- Those with blls <25 µg/dL are statistically less likely to have a completed interview
  - 35.4% vs. 48.3% [X^2=15.8, p-value=0.0012]

- The HMR is seeing the same types of occupational exposures among the “old” interviewed cases when compared to “new”
  - bridge work & “job-related” still top exposures identified

Conclusions

- The HMR is seeing more non-occupational exposures among the “newly” interviewed cases.
  - exposures include shooting, folk medicine use & renovation.
  - varies somewhat from “older” interviewed cases where we saw more exposures from environmental & cookware.

Recommendations

- Emphasis should be placed on those people NEVER interviewed and those with unknown exposures.
- Those with known employers & occupational exposures don't need full telephone interview; can benefit from abbreviated follow-up interview or mailing.
  - might be useful to have person contact DOH if job/company has changed.

Recommendations

- States need to decide if they can dedicate enough man power to a large increase in workload.
  - Telephone interviews are time consuming and often times end without contact.
  - Staff time may be best served making phone calls to labs/physicians to collect employer and/or exposure information.

Recommendations

- Important to provide education to all meeting bll interview criteria
  - Not necessarily full telephone interview
- Maintain interview protocol among “vulnerable” population
  - New cases
  - Cases with unknown exposures
  - Women of childbearing age
  - Younger workers

Questions?